DOT/FAA/AR-02/08

Office of Aviation Research
Washington, DC 20591

Project Plan: Screener Readiness Test Impact Study

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September 2001

Project Plan

U.S. Department of Transportation
Federal Aviation Administration

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Technical Report Documentation Page

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.
DOT/FAA/AR-02/08		

4. Title and Subtitle	5. Report Date
Project Plan: Screener Readiness Test Impact Study	September 07, 2001
	6. Performing Organization Code AAR-510
7. Author(s) Joshua Rubinstein, Ph.D., Brenda A. Klock and Eric Neiderman, Ph.D.	8. Performing Organization Report No. DOT/FAA/AR-02/08
9. Performing Organization Name and Address Office of Aviation Security Research and Development Systems Integration Branch Federal Aviation Administration William J. Hughes Technical Center Atlantic City International Airport, NJ 08405	10. Work Unit No. (TRAIS) 11. Contract or Grant No.
12. Sponsoring Agency Name and Address Federal Aviation Administration Associate Administrator for Civil Aviation Security, ACS-1 800 Independence Ave., S.W. Washington, DC 20591	13. Type of Report and Period Covered Project Plan 14. Sponsoring Agency Code ACS-1

15. Supplementary Notes
This project plan was prepared by William Maguire, Ph.D., Logicon/FDC

16. Abstract
The Screening Company Certification Rule will evaluate screening companies' performance using Threat Image Projection (TIP). It will require individuals who have received initial screener training to pass the Screener Readiness Test (SRT) before they can receive on-the job training. It is, therefore, important to evaluate the relationship between SRT and TIP performance in order to gauge the impact of the SRT on screener hiring practices. This project plan describes a study of the SRT impact using current screeners at William B. Hartsfield Atlanta International Airport, Detroit Metropolitan Wayne County Airport, and Seattle-Tacoma International Airport.

17. Key Words	18. Distribution Statement
Screener Readiness Test Threat Image Projection Aviation Security Checkpoint Screeners Human Factors	This report is approved for public release and is on file at the William J. Hughes Technical Center, Aviation Security Research and Development Library, Atlantic City International Airport, New Jersey 08405 This document is available to the public through the National Technical Information Service, Springfield, Virginia, 22161

19. Security Classif. (of this report)	20. Security Classif. (of this page)	21. No. of Pages	22. Price
Unclassified	Unclassified	11	

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ACRONYMS

CBT	Computer-Based Training
HFE	Human Factors Engineer
PM	Program Manager
QA	Quality Assurance
SCCR	Screener Company Certification Rule
SRT	Screener Readiness Test
TER	Test and Evaluation Report
TIP	Threat Image Projection

1. INTRODUCTION

The Aviation Security Human Factors Program has developed a Screener Readiness Test (SRT) [1]. The SRT is an achievement test that can be used to evaluate the level of checkpoint-related knowledge acquired by newly trained screeners. When incorporated into regulations, particularly the Screener Company Certification Rule (SCCR), the SRT will be used as a measure of whether a screener has the requisite knowledge to continue to on-the-job training at the checkpoint and eventually to work as a screener.

The SCCR will also require screening companies to demonstrate a level of competence at the X-ray screener position. The measure of X-ray screening competence will be screener performance as measured by Threat Image Projection (TIP).

It must be determined whether SRT scores are inversely correlated with X-ray threat detection ability in order to be certain that the use of the SRT will not eliminate highly skilled X-ray screeners from the screener workforce. Additionally, a cutoff score is still to be determined for the SRT. If there is a positive correlation of SRT scores and TIP performance, then a choice for SRT cutoff score might be that which predicts a specific TIP performance as determined by the SCCR.

1.1 Background

One hundred ninety-two screeners took the SRT as part of an evaluation of Computer-Based Training (CBT) systems, between September 2000 and February 2001 [2]. As of August 2001, 34 of the original group are still working as checkpoint screeners. By collecting TIP data for the 34 screeners between August 13 and September 18, 2001, Human Factors Engineers (HFEs) will be able to perform the necessary regression analyses by comparing these TIP data with their original SRT data.

1.2 Purpose

The main purpose of this project is to determine whether SRT scores are inversely correlated with X-ray threat detection performance in order to be certain that the use of the SRT will not result in eliminating highly skilled X-ray screeners from the screener workforce. A second purpose of this project is to use the relationship between SRT scores and TIP data to choose a minimum SRT cutoff score. This is dependant on the finding of a significant positive correlation between SRT scores and TIP data.

2. MAJOR PROGRAM ACTIVITIES

2.1 Phase I - Planning and Proposed Strategy

This project plan details the overall plan and proposed strategy for the SRT impact study.

2.2 Phase II - Test Planning and Coordination

This test plan will identify the Critical Operational Issues and Criteria, and Measures of Performance and Effectiveness associated with the evaluation of SRT impact on TIP performance. In addition, data collection procedures and protocols will be detailed, and the limitations of this test design will be identified.

2.3 Phase III - Field Test, Database, and Interim Reports

TIP data will be collected for those individuals who participated in the study of initial screener CBT and who are still working as checkpoint screeners at the present time. The data will be collected at the three airport sites where the original study took place: William B. Hartsfield Atlanta International Airport, Detroit Metropolitan Wayne County Airport, and Seattle-Tacoma International Airport. HFEs will closely monitor TIP data at these three sites from mid-August until mid-September. The airport monitoring will emphasize the following activities: 1) It will be ascertained whether all of the individuals in the target group are working at X-ray machines, logging into the TIP system consistently and correctly, and registering TIP data, and 2) If an individual is not providing TIP data at one of the sites, it will be determined why no TIP data are present for the individual, and the deficiency will be corrected if at all possible. These remedies include entering correct information in the user database and encouraging duty managers and screening company points-of-contact to use these targeted individuals as X-ray screeners. An airport monitor will keep a record of the status of each of the target individuals updated on a daily basis.

Data collected from the study will be incorporated into an annotated database for archiving, analysis, and reporting. Upon downloading the data to a database, each data set will be examined to ensure that it meets the expected requirements, including the verification and accuracy of the unique machine serial number, screener ID number and name, and screener responses. Custom queries will be created to reformat the data to meet the goals of the data analyses. The database will be developed in Microsoft® Excel™, and the database documentation will permit use and modifications by an independent database designer/analyst.

Interim data reports will be provided every 7 days from the start of data collection. These reports will present descriptive statistics for screener TIP performance, as well as correlational analyses.

2.4 Phase IV - Final Reporting

On September 19, a short preliminary data report will be provided to FAA headquarters personnel. The report will describe the correlation between SRT performance and TIP performance and will provide a statistical test of the hypothesis that this correlation is negative (One tailed test, Ho: $r >= 0$). The report will also offer a very preliminary analysis of the SRT scoring options in the light of this correlational analysis.

The entire data collection process will be described in a final test and evaluation report (TER). The TER will discuss the method used to collect the field data and present all analyses, including a thorough analysis of SRT scoring and the cutoff score.

2.5 Phase V - Revisions

During Phase V, any revisions required will be made.

3. PROJECT MANAGEMENT

The FAA Technical Lead is responsible for developing and administering this project. The overall responsibility for the quality of all projects and the timely completion of these projects under the program are the program manager's responsibility.

3.1 Project Planning and Monitoring

This project plan forms the baseline for planning and monitoring the progress and status of the project. During the course of the project, bi-weekly activities reports will be provided at the regularly scheduled meetings. A monthly Earned Value Analysis will also be provided. Any risk associated with the on-time/on-budget completion of the project will be reported and resolved at the time it arises. Periodic reviews of the plan against progress made will be conducted and any replanning will be done as necessary.

3.2 Deliverables

Table 1 depicts the milestones for this project. In addition, a database will be delivered within 5 calendar days from the completion of each data collection and analysis phase. Preliminary reports will be produced within 15 days after returning from an airport assignment. Finally, monthly status reports will be written.

TABLE 1. PROJECT MILESTONES

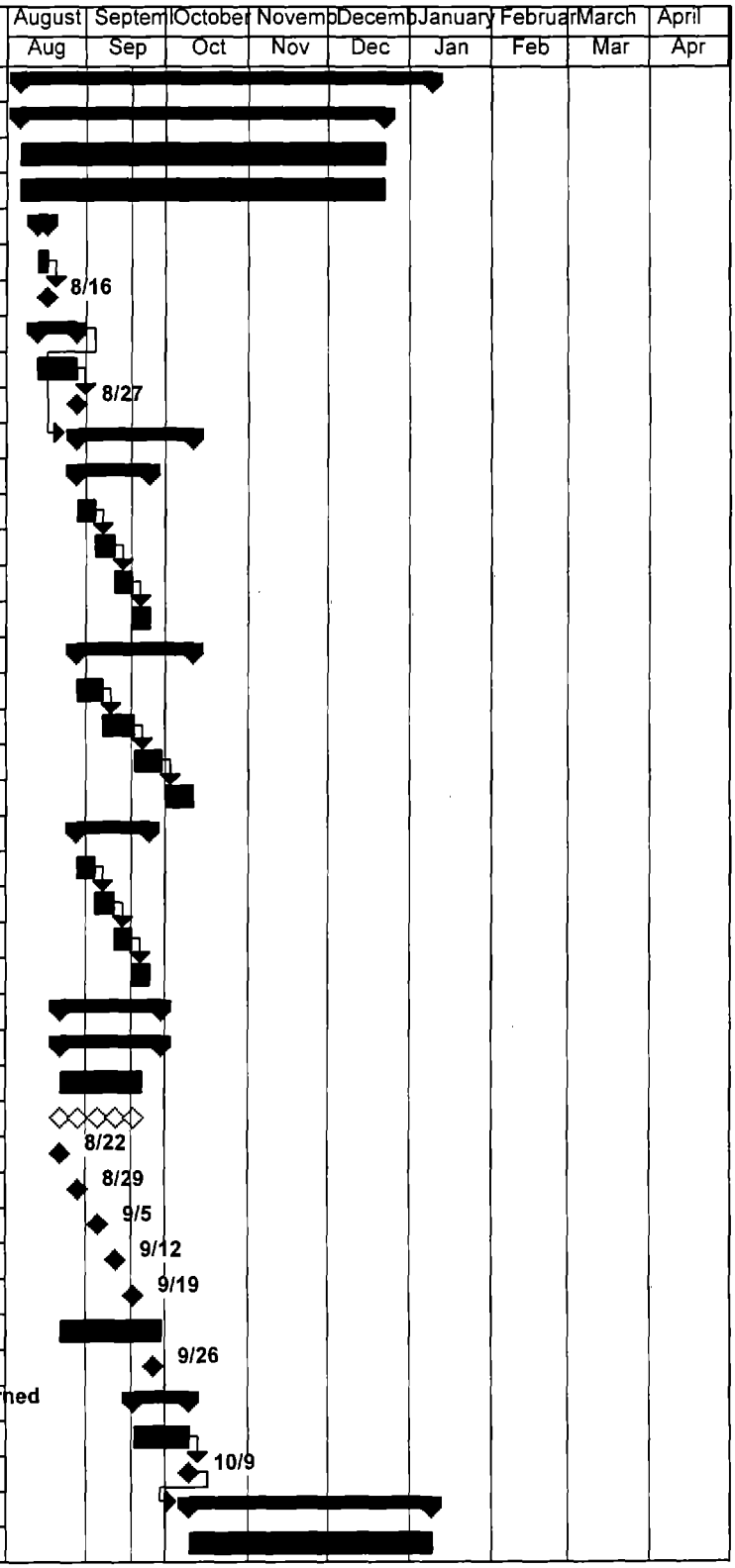
Milestone	**Completion Date**
Draft Project Plan	8/16/01
Draft Test & Evaluation Plan	8/27/01
Weekly Status Reports	Every Tuesday beginning 8/21
Draft Preliminary Data Report	9/19/01
Database	9/26/01
Draft Final Test and Evaluation Report	10/9/01

3.3 Schedule

The project schedule is shown in table 3. It defines both the work breakdown structure elements to be performed and the expected completion schedule. Note that the duration for each task is defined in working days rather than calendar days.

TABLE 3. GANTT CHART PROJECT SCHEDULE

ID	WBS	Task Name
1	**1**	**SRT Impact Study**
2	**1.1**	**Project Management**
3	1.1.1	Ongoing Planning
4	1.1.2	Status Reporting
5	**1.2**	**Phase 1 Planning & Strategy**
6	1.2.1	Write Project Plan
7	1.2.2	Produce Draft Project Plan
8	**1.3**	**Phase 2 Test and Evaluation Plan**
9	1.3.1	Write T&E Plan
10	1.3.2	Produce Draft T&E Plan
11	**1.4**	**Phase 3 Field Data Collection**
12	**1.4.1**	**DTW Collection**
13	1.4.1.1	Trip 1 - Collect TIP data
14	1.4.1.2	Trip 2 - Collect TIP data
15	1.4.1.3	Trip 3 - Collect TIP data
16	1.4.1.4	Trip 4 - Collect TIP data
17	**1.4.2**	**SEA Collection**
18	1.4.2.1	Trip 1 - Collect TIP data
19	1.4.2.2	Trip 2 - Collect TIP data
20	1.4.2.3	Trip 3 - Collect TIP data
21	1.4.2.4	Trip 4 - Collect TIP data
22	**1.4.3**	**ATL Collection**
23	1.4.3.1	Trip 1 - Collect TIP data
24	1.4.3.2	Trip 2 - Collect TIP data
25	1.4.3.3	Trip 3 - Collect TIP data
26	1.4.3.4	Trip 4 - Collect TIP data
27	**1.5**	**Phase 3 Reports**
28	**1.5.1**	**Database & Interim Reports**
29	1.5.1.1	Prepare Interim Data Reports
30	**1.5.1.2**	**Weekly Status Reports**
31	1.5.1.2.1	Weekly Status Reports 1
32	1.5.1.2.2	Weekly Status Reports 2
33	1.5.1.2.3	Weekly Status Reports 3
34	1.5.1.2.4	Weekly Status Reports 4
35	1.5.1.2.5	Weekly Status Reports 5
36	1.5.1.3	Populate Database
37	1.5.1.4	Complete Database
38	**1.6**	**Phase 4 Final Report & Lessons Learned**
39	1.6.1	Write TER
40	1.6.2	Produce Draft TER
41	**1.7**	**Phase 5 Revisions**
42	1.7.1	Prepare Revisions



3.4 Quality Assurance

Quality Assurance (QA) requires that each program maintain a quality assurance plan tailored for that program.

The QA activities envisioned for this project include the following:

a. Formal/Informal Reviews – formal and informal reviews will be conducted to evaluate progress towards completion of the current phase and/or assess readiness for the formal reviews. Bi-weekly activity reports will be reviewed by the Technical Lead for this project to ensure that quality standards are being maintained. At the completion of each phase of the project, the Technical Lead will conduct an audit to ensure quality of the products prior to beginning the next phase.

b. Evaluation/Inspections – evaluation and inspections may be conducted periodically to assess conformance to this project plan.

c. QA Reporting – status reports on the QA for this project will be contained in the Project Monthly Status Report. It will include QA activities performed for the reporting period, the results of these activities, the problems identified and corrected or action items assigned, the status of previous action items, and plans for the next reporting period.

d. Final Delivery Certification – prior to delivery of the draft Final Report, the Technical Lead will ensure that the products meet their original requirements and that the draft Final Report accurately describes what was performed in each project phase and the results of these activities.

e. Internal Review - following the incorporation of the human factors program comments, the deliverables will be circulated to the branch manager and FAA headquarters sponsors.

f. Final Revision Process – a 6-month review and comment period will be implemented into the lifecycle of the project. This will cover the time for FAA sponsors as well as the Technical Lead to incorporate any changes required.

4. REFERENCES

1. Neiderman, E. C., "Test and Evaluation Report: Screener Readiness Test Cutoff Score Field Evaluation" (DOT/FAA/AR-01/35). FAA William J. Hughes Technical Center, Atlantic City International Airport, NJ, 2001.

2. Klock, B. & Rubinstein, J., "Test and Evaluation Report for Determining Screener Training Effectiveness" (DOT/FAA/AR-01/70). FAA William J. Hughes Technical Center, Atlantic City International Airport, NJ, 2001.